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SHORT REPORT

Semplates: A new concept in lexical semantics?

STEPHEN C. LEVINSON

*Max Planck Institute
for Psycholinguistics*

NICLAS BURENHULT

*Max Planck Institute
for Psycholinguistics
and
Lund University*

This short report draws attention to an interesting kind of configuration in the lexicon that seems to have escaped theoretical or systematic descriptive attention. These configurations, which we dub *SEMPLES*, consist of an abstract structure or template, which is recurrently instantiated in a number of lexical sets, typically of different form classes. A number of examples from different language families are adduced, and generalizations made about the nature of *semples*, which are contrasted to other, perhaps similar, phenomena.*

Keywords: *semple*, lexical semantics, space, landscape lexicon, metaphor, analogy, cultural models, sense relations, toponyms

1. INTRODUCTION. The purpose of this short report is to draw attention to an unremarked type of patterning in the lexicon, and to suggest that these patterns are of sufficient importance to warrant the introduction of a new descriptive concept in lexical semantics, which we dub a *SEMPLE* (a blend of semantic template).¹

The observations that motivate the new descriptive concept are of the following kind. Within a language, some semantic or conceptual template—for example, a three- or four-way spatial opposition—surfaces again and again in distinct lexical sets, say prepositions, spatial nouns, verbs of motion, and the like. This template typically involves not just a single parameter or dimension of opposition, but rather a structured set of opposing distinctions. To take a simple example, in Yélî Dnye (the Papuan language of Rossel Island), there are three intransitive stative positional verbs of location glossing ‘sit’, ‘stand’, and ‘hang’—all physical objects have conventional collocations with the positionals according (especially) to their shape, canonical position, and rigidity (Levinson 2000). The very same distinctions apply to causative verbs of ‘putting’ and ‘taking’—so if belts are said to ‘hang’ when located anywhere, then one ‘takes-hanging’ (a monomorphemic root) a belt and ‘puts-hanging’ a belt, choosing verbs that have quite unrelated roots but related semantics (see Levinson & Brown 2010). The distinction between three types of physical objects, each category determined in quite complex ways, is thus reflected in the special form class of intransitive locative positional verbs on the one hand, and causative transitive verbs of placement and removal on the other.

To take another simple example, in the Australian language Kuninjku (Evans 2005), there are distinct terms for, for example, the male and female antilopine wallaby, and corresponding but formally unrelated verbs, so *mawudme* ‘hop (of male antilopine wallaby)’ and *djalwahme* ‘hop (of female antilopine wallaby)’. Thus, lexical opposition of gender in nouns is paralleled by the same opposition in a different form class, namely motion verbs.

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¹ The term ‘semantic template’ is used by Goddard (2007) in a different sense from that intended here, namely as an organizing principle within lexical entries.

A working definition of a *semplate* is that it is a configuration consisting of distinct sets or layers of lexemes, drawn from different semantic subdomains or different word classes, mapped onto the same abstract semantic template (e.g. a geometrical or alternatively graph-theoretic structure). Within a layer, the sense relations between the lexical items are inherited from the underlying template. The whole set of lexical layers and the underlying template form a cross-categorial configuration in the lexicon. In §5, after we have had a chance to develop the notion, we sharpen the definition, and sketch how the concept of *semplate* is related or unrelated to other concepts that have been used in linguistics or anthropology, such as metaphor, cryptotypes, and cultural models. But for present purposes, compare the traditional notion of a grammatical category, such as person, number, gender, or honorification. A grammatical category may or may not be closely hooked to semantic distinctions—for example, accusative case is a grammatical category that expresses the internal grammatical role of a noun phrase rather than its semantic dimensions. In the case of number, though, there is a clear semantic motivation, and it is a category that pops up in different word classes, for example in noun morphology, pronouns, and verb inflection. Such a grammatical category differs, however, from a *semplate* in that (i) it is performing a primarily grammatical rather than a lexical role, and (ii) it does not have the rich semantic content and configurational structure typical of *semplates*.

2. SOME SEMPLATES FROM THE SPATIAL DOMAIN. Without more ado, let us introduce a few *semplates* to indicate the kind of phenomenon we have in mind. Our first examples are taken from the spatial domain, where we first observed *semplates* in detail during collaborative work with colleagues on frames of reference (see Levinson 2003) and landscape notions (Burenhult 2008a, Burenhult & Levinson 2008).

2.1. TZELTAL ‘TILTED WORLD’ SEMPLATE. Tzeltal (a Mayan language of Mexico) has an absolute system of spatial reference—that is, it utilizes something like a cardinal direction system of the north/south/east/west kind (Levinson 2003:Ch. 4). Unlike the English cardinal directions, this is a primary system for spatial reference on any scale, and rather than having labels for four directions, it labels four quadrants with three terms, using the same terms for east and west. In fact, the underlying template is clearly based on the notion of a notional slope or angled world: ‘up’ is south, ‘down’ is north, ‘across’ is east or west (see Figure 1). The notion of a slope shows up in distinct, formally unrelated, lexical sets. For example, there are abstract spatial nominals used to construct complex spatial prepositions of the kind ‘at its upness, i.e. uphill of it’. Second, there are relational nouns (a special word class) for northern, southern, and east/west edges of, for example, fields or boundaries. And there is a set of basic intransitive motion verbs to indicate ‘ascending’ (i.e. going south), ‘descending’ (i.e. going north), and ‘traversing’ (i.e. going east or west). From these (and just a few other) motion verbs, a special form class of ‘directionals’ (which function like directional adverbs) can be derived, providing another related lexical set that can be mapped onto the same template.

The system seems based on the notion of a tilted world, which has both an absolute usage in terms of abstract directions (and thus is usable on flat terrain), and a local usage based on actual smaller slopes in whatever direction they happen to be (see Brown & Levinson 1993, Brown 2006, 2008 for the full story). Figure 1 shows the underlying semantic template and its realization in distinct vocabulary sets. In the terminology we are advocating here, the conceptual or semantic template forms the heart of a *semplate*, which organizes distinct sets of words in terms of the same recurring

oppositions (here a three-way opposition). The underlying template thus plays a covert role in organizing different semantic fields within the lexicon. It can be thought of as a set of edges and a set of vectors locked into absolute (geocentric) coordinates.

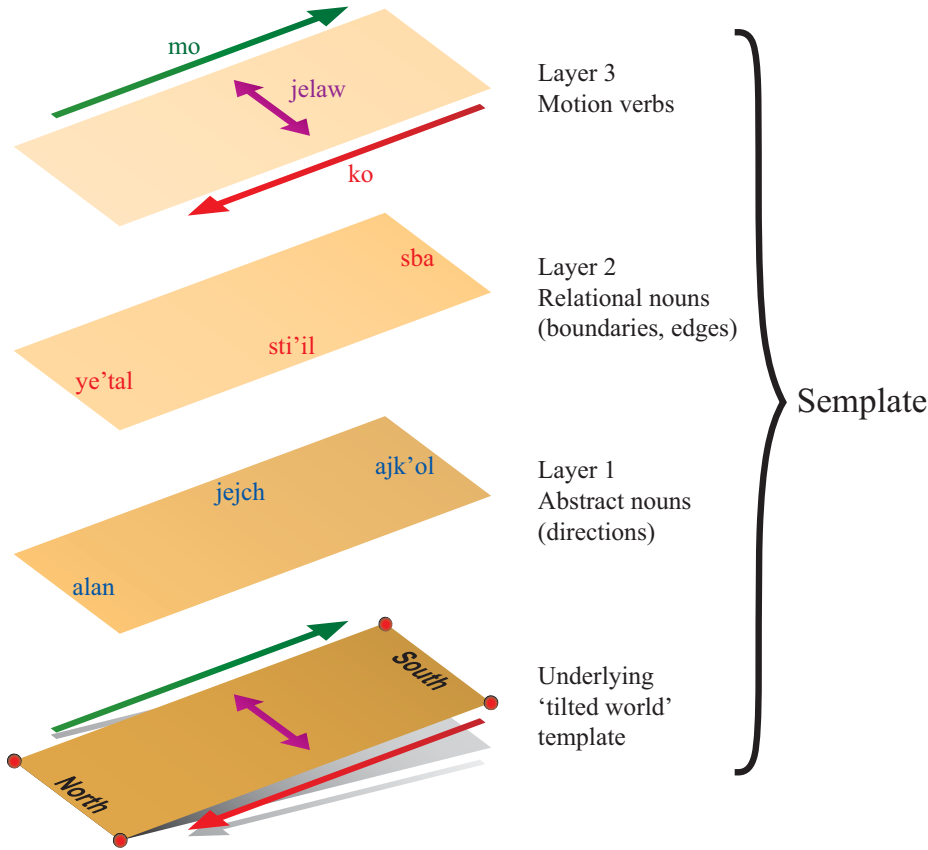


FIGURE 1. Tzeltal semplate of 'tilted world' and its expression in three form classes.

2.2. YÉLÎ DNYE VECTOR SEMPLATE. Another example of a spatial semplate can be found in Yélî Dnye, the isolate language of Rossel Island, Papua New Guinea (see Levinson 2008 for more detail). Again, there is an abstract semantic template that serves to organize lexical sets from different form classes and semantic fields. The semplate operates in three environmental domains, land, rivers, and sea, and has as its core three key vectors defined in 'force dynamics' terms as in Talmy 1988 (see Figure 2). The vectors are defined as (i) the direction against the prevailing force (gravity, flow, wind, respectively, for each of the domains land, river, sea), (ii) the reverse directions (with the prevailing force), and (iii) across the prevailing force. In some of the domains (especially land and river), there are additional vectors (e.g. where there is no prevailing force) and locations (at the top of/at the bottom of/on the across-vector of the prevailing force).

In the land domain, the model is of an inclined ridge running up a mountain (Rossel Island is a small, 40 km long island with a central mountain range reaching nearly 900 meters). A ridge has the property that it has an upward slope, with falling flanks on either side; there is one practical direction of ascent, and all other directions are downhill. The

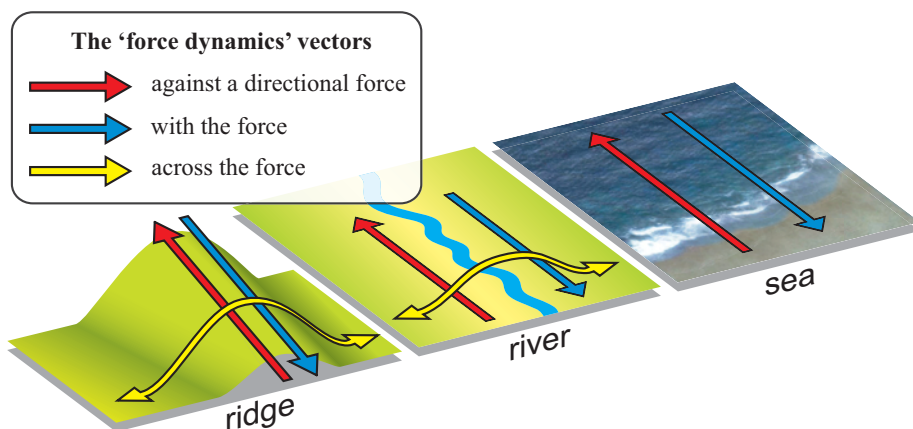


FIGURE 2. The Yélf Dnye force dynamics template applied to three domains.

direction of ascent determines the direction of the vector against the force, and thus of the other vectors. In addition to these vectors, there is a vector along a plain or flat, where there is no prevailing force. These four directions—up, down, over, along—are instantiated in three lexical sets, each with four verbs, as shown in Figure 3, top panel. The verbs are shown again in Table 1 for clarity (these verbs, like most in Yélf Dnye, are suppletive, and are shown here only in the citation form).

These verb sets belong to different form classes. The first, intransitive, set consists of normal, common, intransitive motion verbs, ‘ascend’, ‘descend’, ‘go over’, ‘go along (a flat)’. The verbs of the second set are here called ‘landscape transitives’, in that they take a landscape feature (here a ridge or plain) as their overt object, ‘climb a ridge’, ‘follow down a ridge’, ‘cross a ridge’, ‘traverse a flat’. The third set consists of transitive verbs of carrying, presupposing the vectors and landscape features, ‘carry something up (a ridge)’, ‘carry something down (a ridge)’, ‘carry something over (a ridge)’, ‘carry something along (a flat)’.

Since these verbs belong to different form classes, this mapping of three distinct sets onto the vector template already constitutes a semplate. But there are also nominals that relate to the template, naming the vector heads, tails, and transits, as shown in the bottom panel of Fig. 3. These play an important role in toponyms as well, a word class identifiable by implicit goal/source marking; for example, the terms in Fig. 3 occur in binomial toponyms like *Mbu mbêmê* ‘top of the rise’, *Pwele vyuwo* ‘Pwele slope bottom’, *Tââ chókó* ‘Tââ pass (over ridge)’, *Kpée paa* ‘flank of Kpée mountain’ (the first and the last are village names, the second an area name, the third the name of a pass over a ridge).

The same template also applies to watercourses. In Yélf Dnye, rivers are conceived of in terms of three distinct parts (there is no one term for river): the fresh water segment, the salty tidal segment, and the water course of mixed salty/fresh water that flows through the lagoon. Figure 4 shows how the same template applies to rivers: the upstream direction gives the main vector, the converse direction is downstream, and the orthogonal is the across vector. The same three verb sets above apply to rivers, but with one change: there is now a special landscape transitive verb for crossing a river (see Fig. 4, top panel). Just as the tops and bottoms of ridges yield binomial toponyms, so do they for the tops and bottoms of each river segment (illustrated in Fig. 4, bottom

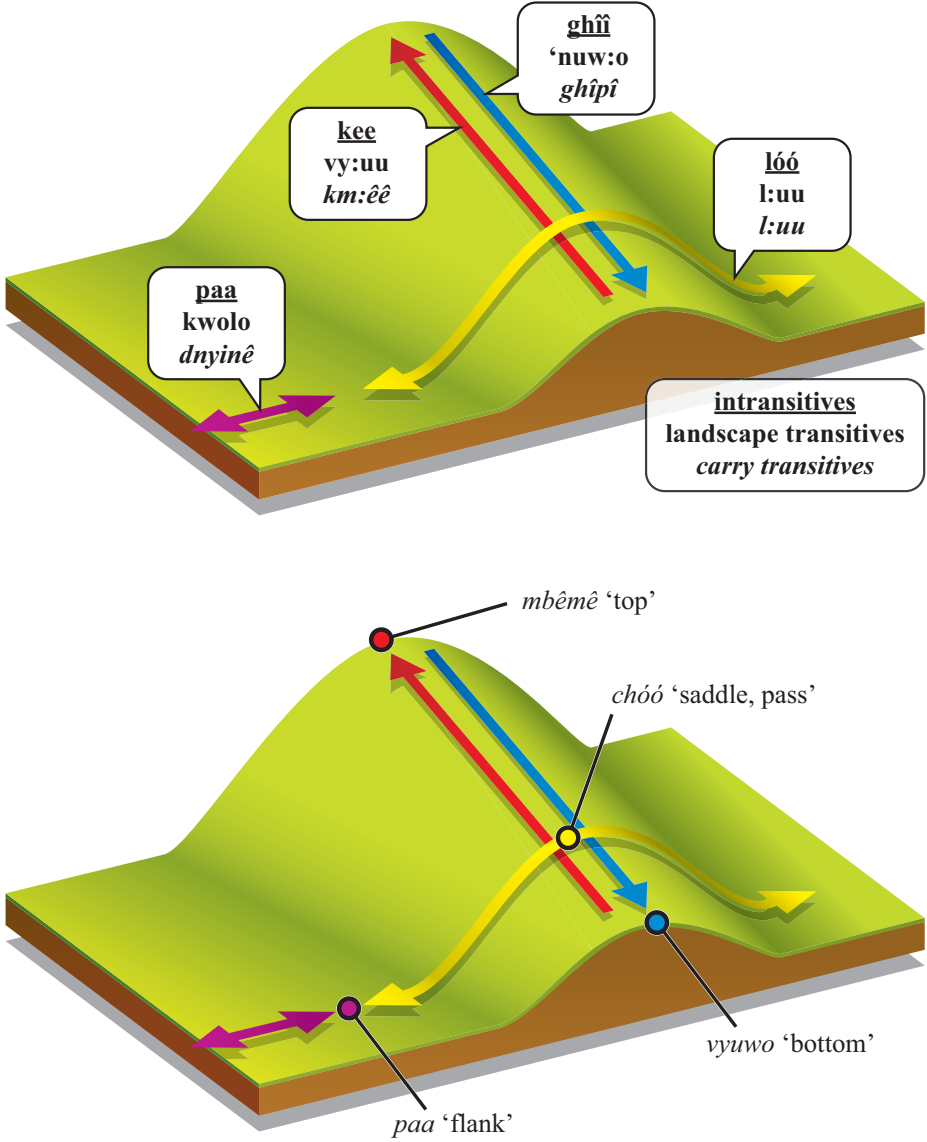


FIGURE 3. Top panel: The Yéfi Dnye template applied to an inclined ridge, with three sets of verbs labeling the vectors. Bottom panel: The Yéfi Dnye names for vector heads, tails, and transits, which play a role in toponyms.

	UP	DOWN	OVER	ALONG
intransitives	kee	ghîî	lóó	paa
landscape transitives	vy:uu	'nuw:o	l:uu	kwolo
carry transitives	km:êê	ghîpî	l:uu	dnyinê

TABLE 1. The three Yéfi Dnye verb-sets matching the four template vectors.

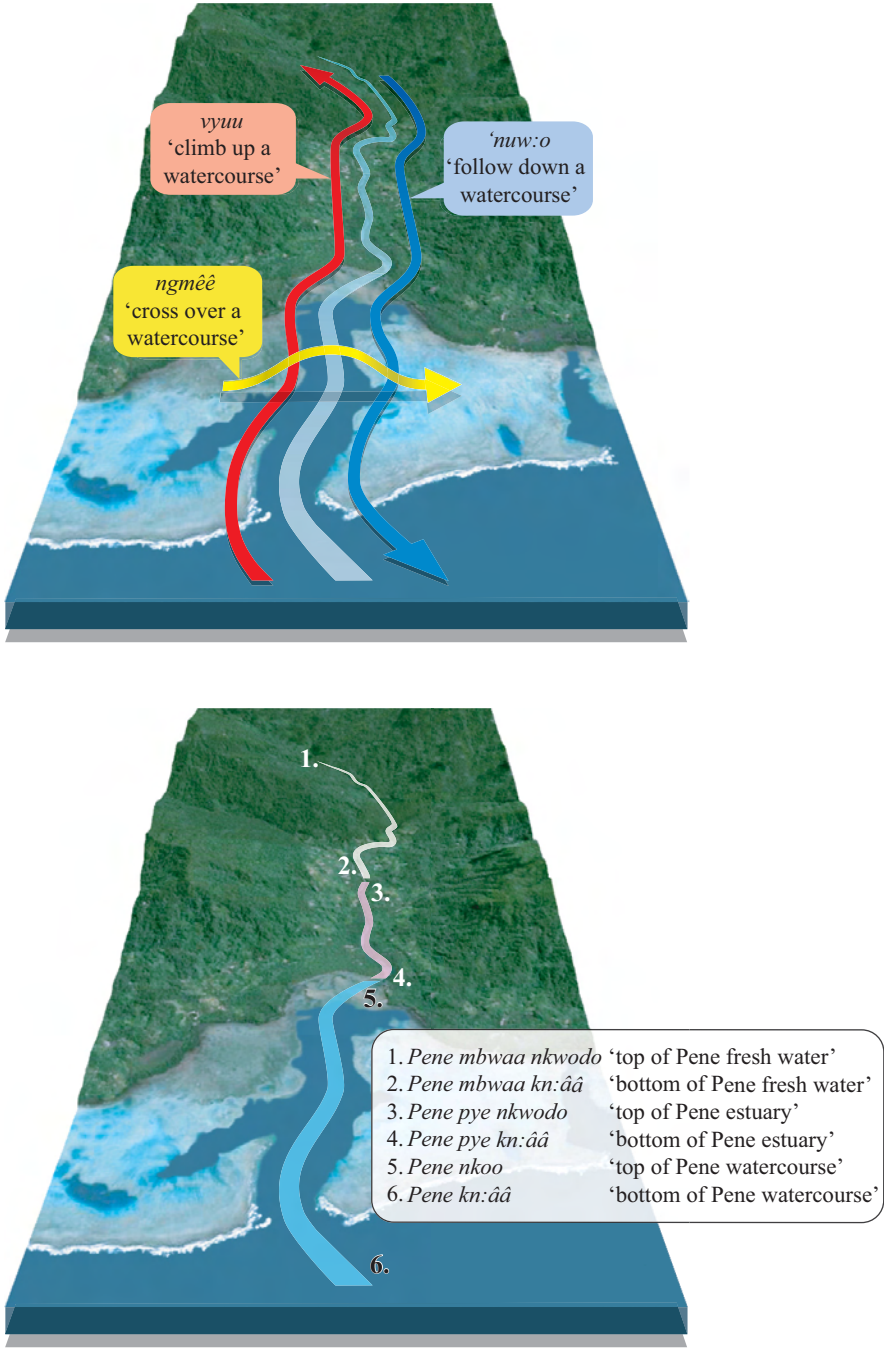


FIGURE 4. Top panel: The Yéli Dnye vector template applied to watercourses (illustrated with landscape transitives). Bottom panel: The Yéli Dnye names for vector ends for each river segment (example toponyms).

panel, in the rare case of a river that has the same proper name for the first part of the binomial for each segment).

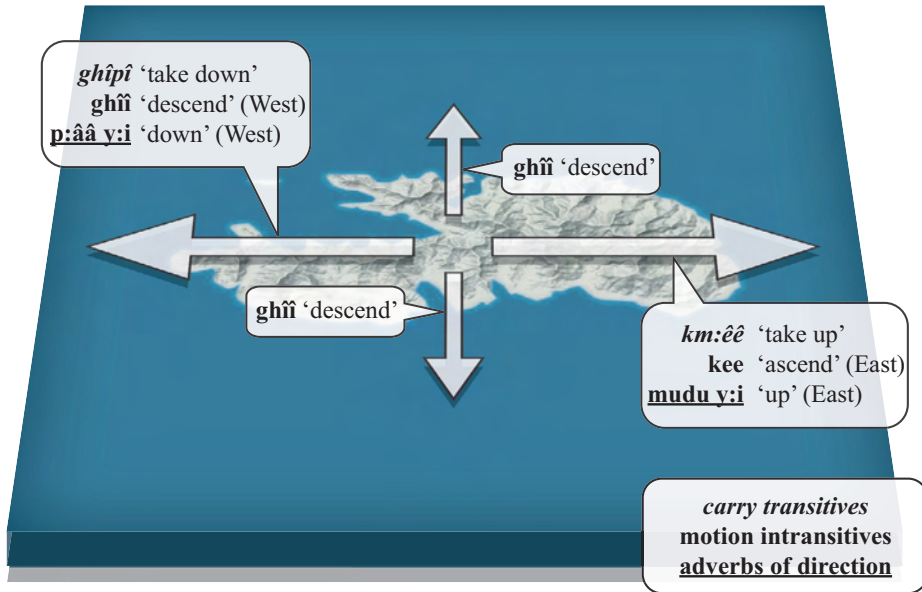


FIGURE 5. The Yéli Dnye template applied to the sea around Rossel Island (illustrated with carry transitives, motion intransitives, and adverbs of direction).

Finally, the template also applies to the sea, as illustrated in Figure 5 for carry transitives, intransitive motion verbs, and adverbs of direction. In this case the force dynamics, and thus the vector directions, are given by the prevailing trade winds from the east, which make progress hard eastwards, and easy in all other directions.

The Yéli Dnye system illustrates two points in particular. First, a semplate can be almost completely covert: we do not find the same lexical roots involved in toponyms and verbs, and within the different classes of verb (motion intransitives, landscape transitives, carry transitives) the corresponding roots are nearly all distinct. A semplate like this cannot be discovered by looking at formal linguistic reflexes, only by noting close parallels in semantic oppositions across lexical fields. Second, the abstract idea behind a semplate naturally explains the application of the same verbs to land and sea: just as it takes more effort to go uphill, so it takes more effort to boat up a river, or to sail upwind on the sea. The force-dynamical template has one direction of motion against the prevailing force, with the reverse direction being facilitated by the prevailing force. This extension of the same template to three domains, land, watercourses, and sea, indicates a role for analogy, a point we return to in §5.

2.3. JAHAI LANDSCAPE SEMPLATE. We turn now to yet another example, in this case from the Mon-Khmer language Jahai, spoken in the Malay Peninsula. The Jahai are a hunter-gatherer (Semang) group who live nomadically in dense rainforest in hilly areas bisected by many watercourses of different sizes. These geophysical features provide the framework for landscape categorization and attendant notions (see Burenhult 2008b for details). The underlying abstract template is shown in panel A of Figure 6, which has the form of a single major directed axis, with orthogonal lateral directed axes pointing toward it, and which invokes a geometrical structure based on a sagittal/lateral

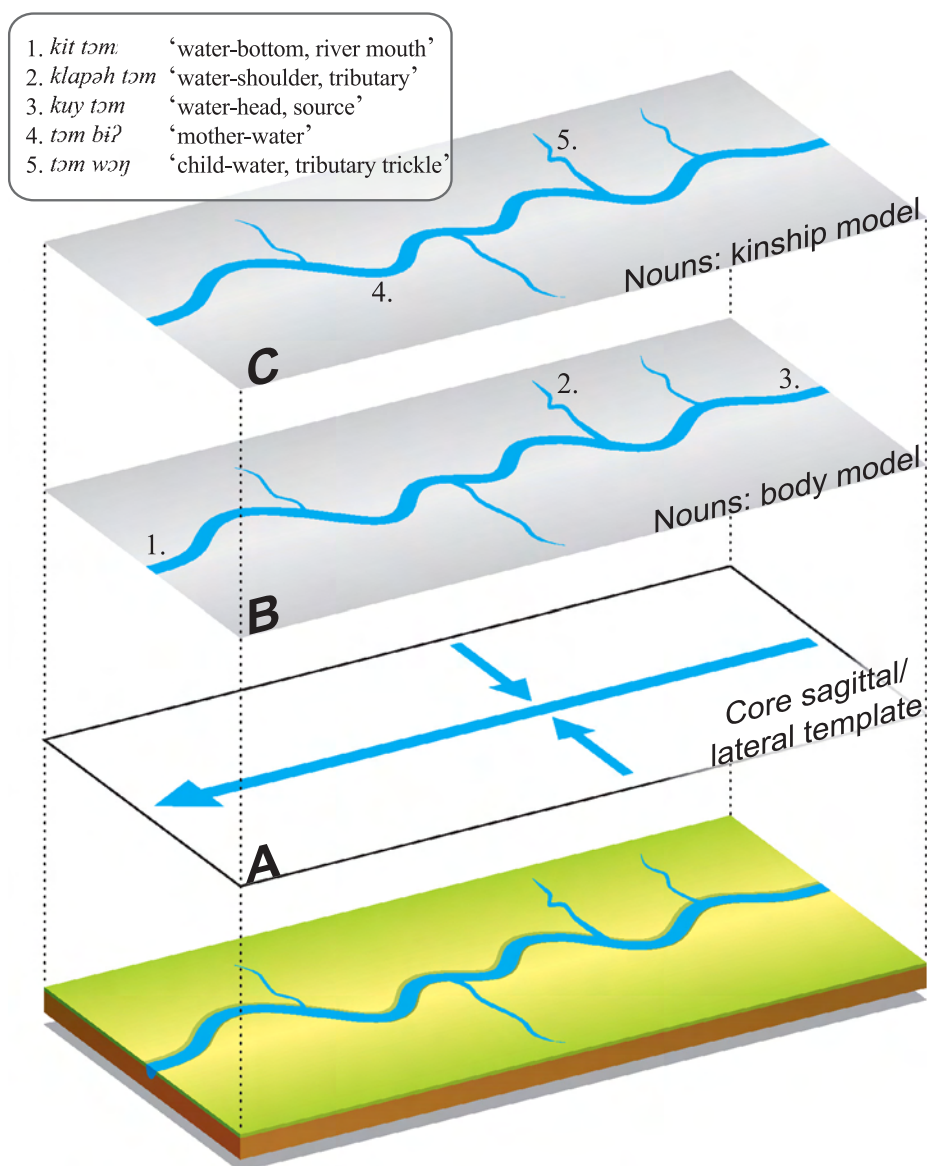


FIGURE 6. The Jahai landscape template and its expression in nominal metaphor (body and kinship).

distinction. The template has its closest connection to watercourses: the direction corresponds to the downward flow of water, and the lateral axes correspond to tributaries.

This template structures a number of different lexical fields, notably relating to water flow. First, it can be directly expressed nominally using one of two metaphors (the role of metaphor in templates is taken up in §5). In the one, sketched in panel B of Fig. 6, a watercourse is conceived of as the body of a prostrate human or animal, the source its head, the tributaries its limbs, and its outflow into a larger water body its anus or bottom. The corresponding lexical terms apply 'fractally', that is, each tributary can itself be considered a main axis, with subsidiary tributaries, and so on—thus the body

metaphor applies from large rivers right down to trickles.² The second metaphor is a kinship one, as illustrated in panel C, in terms of mother and offspring. While mother refers to major watercourses of varying size, offspring refers strictly to smaller tributaries of a particular size.

The template further provides the underlying structure for toponyms. Jahai toponyms denote drainage basins, so the whole valley or drainage basin in which the main watercourse flows has a proper name, but so do the drainage basins for each tributary corresponding to the offspring of the kinship metaphor, as sketched in Figure 7, panel A. Another lexical class structured by the template is a set of motion verbs, as in panel B of Fig. 7. These distinguish 'motion along mother watercourse' from 'motion across', and from motion along the tributaries, here distinguished as 'motion up along offspring watercourse' vs. 'motion down along offspring watercourse'. Yet another lexical set is a pair of locative verbs, which specify position (of e.g. fallen tree trunks or rock faces) as parallel to the direction of water flow, or transverse to it (see Fig. 7, panel C).

But the underlying template is not restricted to structuring hydrologically related lexicon. The sagittal/lateral distinction applies also to other geophysical features, like mountain ridges, which are also lexically mapped with the body and kinship metaphors (as is any physical object). Also, a distinct set of motion verbs distinguish 'motion lengthwise on mountain ridge' vs. 'motion across mountain ridge', as well as 'motion lengthwise on mountain side' vs. 'motion up on mountain side'/'motion down on mountain side'.

In this Jahai example the semplate is partly lexically overt through preestablished lexical relations, namely in its metaphorical nominal manifestation in body-part (meronymical) and kinship (size-taxonomical) compounds (see §4). Most of its participating lexicon is covert, however, in the sense that the lexical forms involved in toponyms, verbs, and subclasses of verbs are all distinct and formally unrelatable (cf. the Yéli Dnye semplate described above).

Summarizing so far, we can see that semplates have certain recurrent properties. In these cases there appears to be an abstract, geometrical, or graph-theoretic template, so that different domains like toponyms or motion verbs can label nodes in the template, or edges and arcs in it.³ Lexical set after lexical set can thus be mapped onto the same abstract object.

3. A SUBSISTENCE SEMPLATE. The Jahai offer us another example from a quite different domain (Burenhult 2009). Jahai ethnobiology is structured in terms of a series of binary oppositions dividing all the different targets of foraging expeditions. By virtue of the way that different sets of lexical items map onto the major categories, we can discern the hierarchical structure given in Figure 8, panel A, which shows the nouns for different types of food mapped onto the hierarchy (in a number of cases, the compound terms indicate the hierarchical structure directly). Panel B of Fig. 8 shows how

² Configurations with the same structures at different scales—the fractal property—are arguably quite widespread in language, as in recursion (see e.g. Robert 1997 on fractal properties in grammaticalization).

³ A graph, in the graph-theoretic sense stemming from Euler 1741, is a way of representing pairwise relations between a set of objects (nodes) by edges or arcs. It is a branch of mathematics well suited to representing the sense relations within a set of lexical items (see e.g. Wordnet, <http://wordnet.princeton.edu/> and Sigman & Cecchi 2002). Some of the terminology to be proposed here for semplates is inspired by graph theory; however, we consider it at this stage to be an expository metaphor for describing some components of semplates, rather than an exactly appropriate analytical tool.

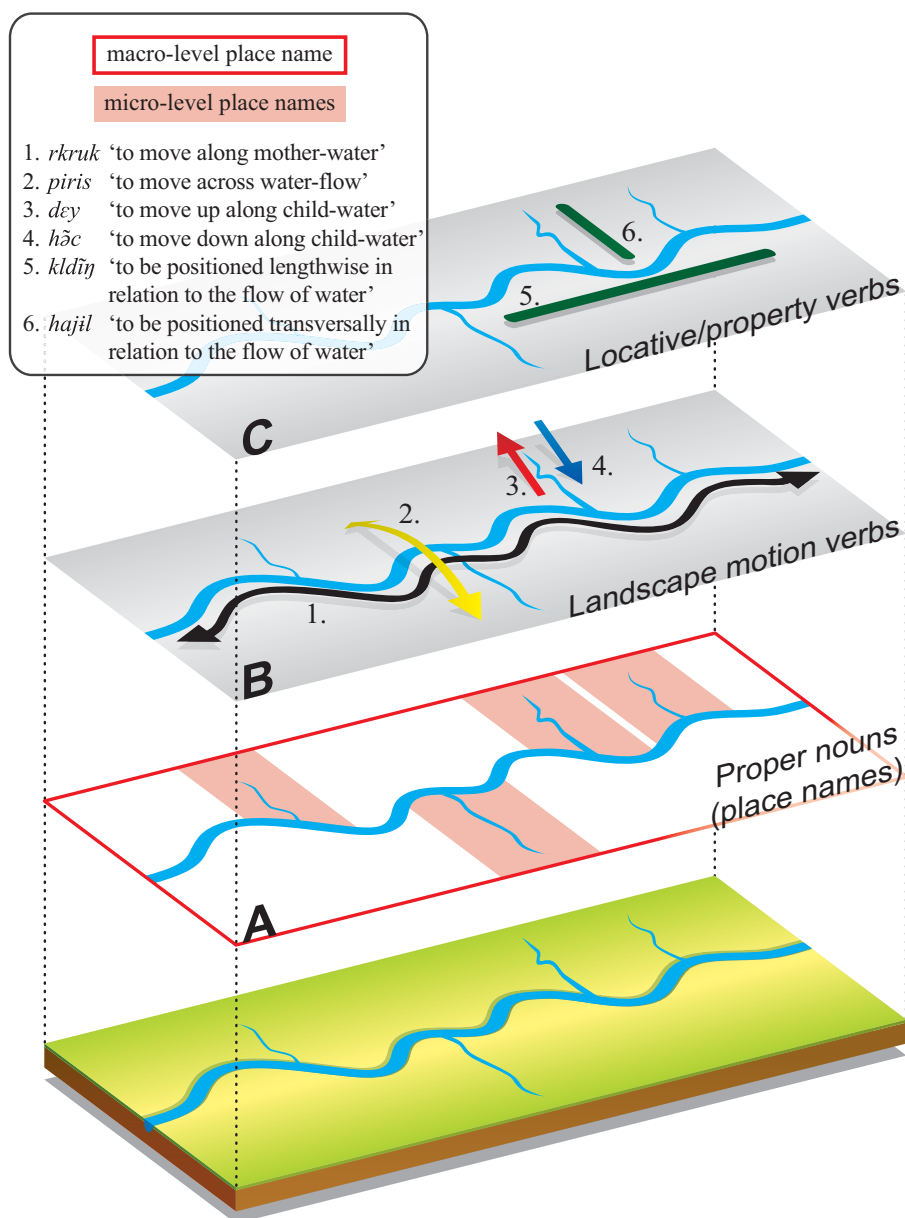


FIGURE 7. The Jahai landscape template as expressed in place names and verbs.

the unnamed top bifurcation (level 2 in the taxonomy) is implicit in the classifiers that collocate with the different food nouns. One classifier goes with vegetable (or leafy) foods and starchy foods; the other goes with fruits and meat from both fish and game animals.

If we now look at collocations of these foraging targets with foraging verbs, we see that distinct verbs go with distinct categories in the hierarchical structure, as shown in Figure 9, panel A. So under a general 'forage for food' verb, there are specific verbs for 'forage by plucking' leafy vegetables, 'forage by digging' starchy ones, 'forage by

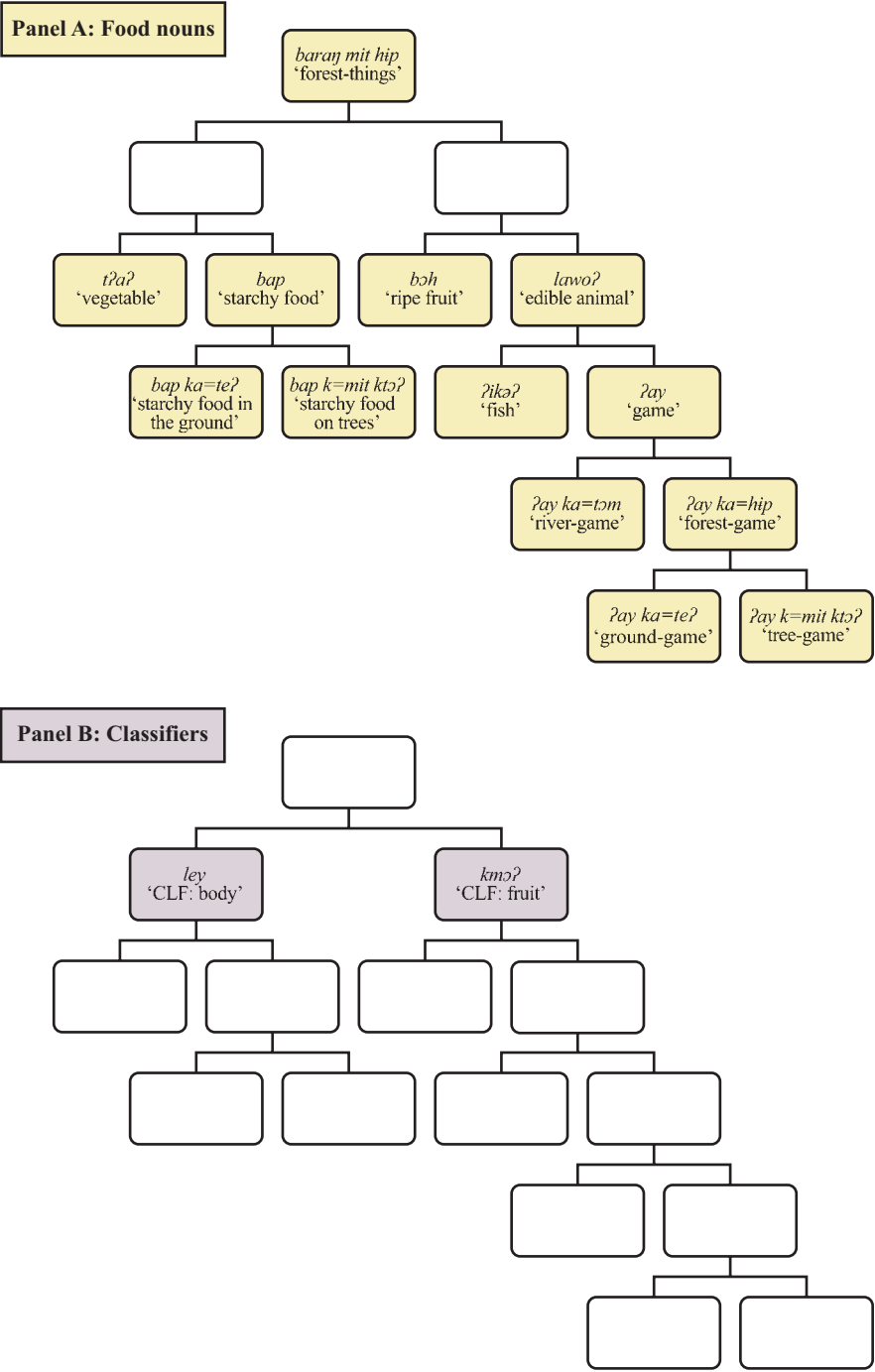


FIGURE 8. Jahai foraging semplate (food nouns and their classifiers).

casting nets' for fish, 'forage by hunting game', or more specifically for arboreal forest game 'forage by blowpiping'. Panel B of Fig. 9 shows a set of distinctions in eating verbs that map exactly onto the four categories in level 3 of the taxonomy: one vegetable-eats, starch-eats, fruit-eats, and animal-eats; one does not eat simpliciter.⁴

It is the mapping of these four sets of words from different classes (food nouns, classifiers, foraging verbs, and eating verbs) onto the categories that establishes the hierarchical order for the analyst (reinforced in the case of starchy foods and game by the lexical phrases of the food nominals). For the native speaker, of course, the structure is presupposed in the way the four sets map. Now, the general interest for the ethnobiologist is that the terminal nodes in the depicted hierarchy split directly into species names, thus demonstrating that the depicted hierarchy constitutes the higher-order taxa of the Jahai ethnobiology covering the foragable world.⁵

4. OVERTNESS VS. COVERTNESS IN SEMPLATES. The semplates we have considered so far are predominantly covert, in the sense that the lexical systems do not in a systematically overt way indicate the position of each lexical item in the system or semplate. Indeed, when the analyst finally figures out the underlying organization, he or she is likely to have a 'eureka!' experience, suddenly able to see coherence across what had seemed to be unrelated lexical sets.

But, in fact, semplates may often, even generally, involve both covert and overt elements. Sometimes, as in the Jahai metaphor examples (§2.3), the nodes in the template may be overtly coherent at one lexical level (body-part compounds), but covert at another lexical level (e.g. motion verbs). Sometimes there may be single nodes on which the same label may appear in two distinct lexical layers, for example, in the Yéli Dnye motion verbs (see Table 1 and §2.2), the transitive verb *l:uu* means both 'carry over' (belonging to the set of carry transitives) and 'cross over a ridge' (belonging to the set of landscape transitives), but the rest of the three series (intransitive motion verbs, landscape transitives, carry transitives) are distinct. In this case, there is an overt signal of the correspondence, but just in one position or node of the semantic scheme, and across just two of the three lexical sets. In the Tzeltal semplate in Fig. 1 (§2.1), there is an additional form class of directionals (functioning like adverbs) that are derived from the motion verbs—so their derived form indicates their participation in the semplate. In the Jahai subsistence semplate (§3), occasional food-denoting compounds hint at the more wide-ranging, but lexically mostly covert, hierarchical structure.

Completely (or predominantly) overt counterparts are perfectly conceivable, that is, systems of lexical or morphological labels that indicate, for each lexical item, which position it has in the abstract template. These have a different flavor from the cases we have adduced, and have normally been thought to instantiate other kinds of linguistic category. Consider Totonac body-part terms (Levy 1999). As in many Mesoamerican languages (see Levinson 1994), these thirty-odd terms not only denote human body

⁴ Although one of these verbs, 'starch-eat', stands in as a generic when one does not know what was eaten, or one wants to generalize over things eaten.

⁵ Interestingly, this seems coupled with an avoidance of higher-level Linnean-like categories generally. When such generic categories do occur in the context of foraged life forms, as with fish, bird, and rodent, they map conveniently onto nodes in the hierarchy. For example, 'bird' and 'rodent' both fit the 'forest-game' category, and both subdivide into terrestrial (e.g. ground squirrels, pheasants) vs. arboreal (e.g. tree squirrels, hornbills) classes, before subdividing into individual species. Incidentally, the lexically exhaustive Jahai hierarchy and its subsistence-motivated higher-order taxa are nothing like the approximations to the Linnean system reported in earlier work, suggesting that Jahai ethnobiology is structured in a way that departs from the standard expectations outlined in, for example, Berlin 1992, Berlin & Berlin 1996.

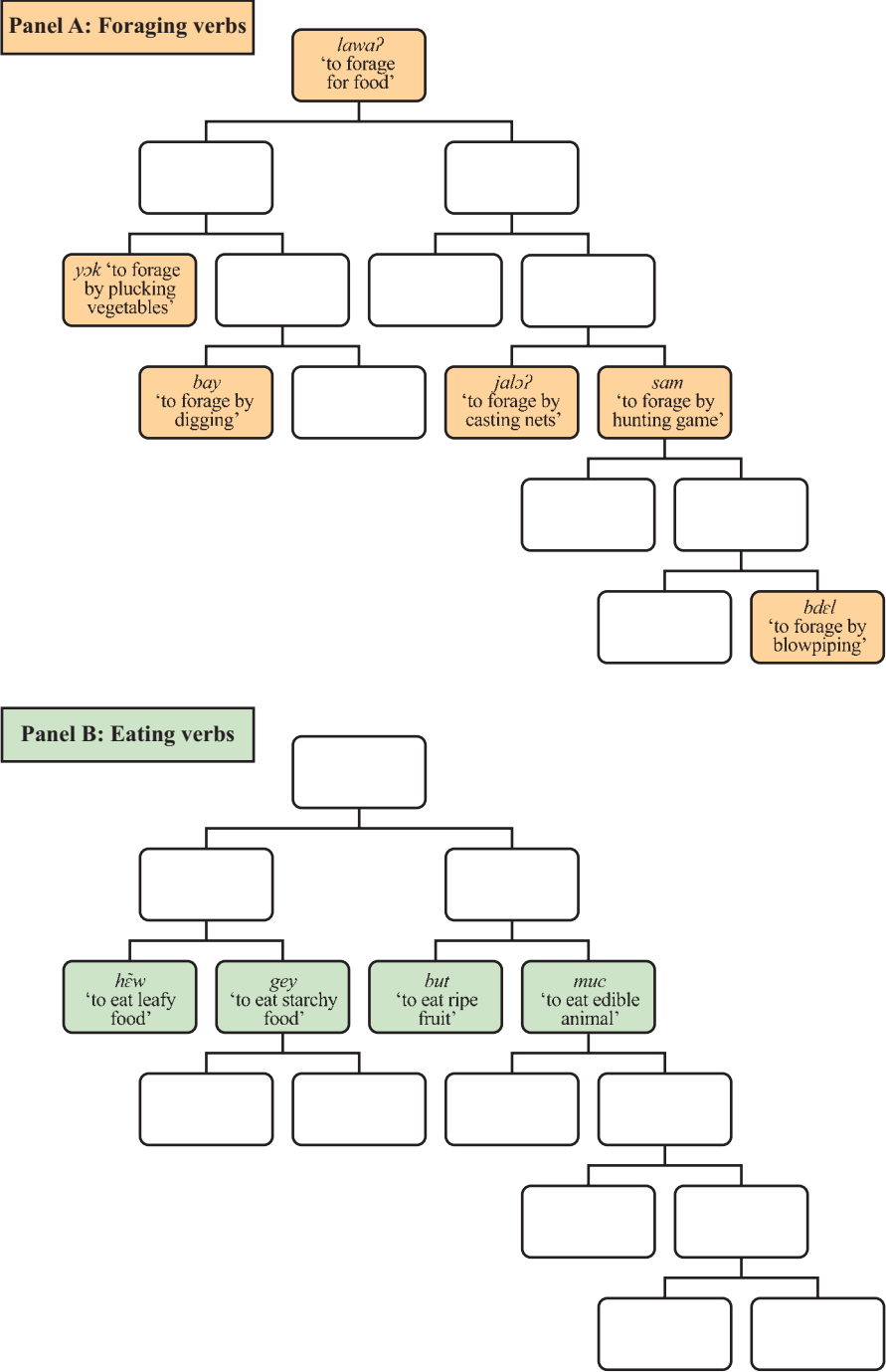


FIGURE 9. Jahai foraging semplate (verbs of foraging and eating).

parts, but also on the basis of shape semantics denote the visible parts of any segmentable physical object; for example, the edges or border of a machete are its 'lips'. Many of these terms function as, or within, different word classes. For example, a subset serve as the roots of numeral classifiers, where their shape semantics classifies the referents counted. Others form compound verbs, sometimes with specialized meanings. More productively, many are incorporated into two classes of verbs, retaining their clear shape-of-part semantics: one class consists of intransitive positionals (locative verbs of sitting, standing, hanging, lying), where the part terms classify the shape of the subject, while the other class consists of transitive verbs, where the part terms classify the affected part (e.g. 'I ear-broke the pot' would mean 'I broke the handle of the pot'). So in a system of this kind, a system of precise semantic discriminations between shapes, coded in the part roots, recurs through a set of distinct form classes (nominals, classifiers, positionals, and derived transitive verbs). Levy (1999) considers the whole system a type of verb classification, but one based on semantic classes rather than formal-functional classes. If we were to treat this as a semplate, the underlying template is the set of shape contrasts, and the body-part roots overtly index the recurrence of these concepts in each of the different form classes (nominals, classifiers, positionals, transitive stems). Whether this kind of phenomenon should or should not be assimilated to semplates proper we leave for the moment moot.

In sum, the semplates at hand vary as to the degree to which they display overt formal clues to their structure. Individual lexical layers may or may not be overtly coherent, just like individual positions in the template may or may not display formal connection across form classes. But the full range of overt/covert variation in semplates awaits the collection of a wider range of examples.

5. SEMPLATES COMPARED TO OTHER SIMILAR CONCEPTS. It should be clear from the examples that semplates are not easily accounted for by the standard forms of lexical analysis. For those who believe in some form of componential analysis (including the modern versions such as in Jackendoff 2002), the recurrence of complex packets of features (or whole blocks of structured representation) again and again is allowed for by the theory, but not in any way predicted. The more features, the greater the number of possible feature bundles, and the more the specific recurrent feature bundles need to be explained. For those, by contrast, who believe words are semantic wholes (Fodor et al. 1975, Lyons 1995, Levelt et al. 1999), there is no reason at all for this close shadowing of semantic content across word classes. If neither of these two global approaches to lexical semantics can handle the phenomena at issue here, perhaps semplates indicate the need for rich metastatements in the lexicon, similar to the notions of 'constellation' and 'meta-template' that have been suggested for parallel phenomena in morphology (Janda & Joseph 1999).

As mentioned at the outset, semplates have some similarity to the traditional concept of a grammatical category—both concepts denote underlying oppositions that (in the case of grammatical categories may, and in the case of semplates must by definition) show up in disparate form classes or semantic fields. But semplates do not subserve grammar; rather, they serve to give organization to the lexicon. Moreover, in most cases semplates have a much richer, more configurational semantic content, reflecting an underlying template that may often play a role in native cosmological ideas (see the remarks above on the Tzeltal tilted world or the Jahai body metaphor in the landscape system). On the evidence we have in hand, semplates have a structure of a geometrical or graph-theoretic character, involving nodes, directions, edges, arcs, orthogonals, geo-

metric analysis, hierarchies, and the like. And they typically involve configurations of multiple oppositions, not just the binary ones of standard semantic analysis (antonymy, hyponymy, and the like).

In that way, semplates are much more semantically, conceptually, and culturally revealing than the average grammatical category. Despite their fundamental interest, they are not easy to spot, for mostly the associated lexical sets do not wear their semplate coparticipation on their sleeves—that is, they do not necessarily have formal or lexical markers indicating that they participate in the same semplate. Like a lot of other subliminal linguistic patterning, they are mostly not objects of consciousness to native speakers, and they are also not immediately evident to analysts working with the traditional grammatical and lexical tools of the trade, which do not provide for them.

There are other concepts that may seem to capture some of the same ground. The eighteenth-century author Fabre d'Olivet's (1816), and subsequently Whorf's (1956), notion of cryptotypes comes to mind, which are categories immanent in morphological or collocational oppositions. 'A covert category may be called a *cryptotype*, a name which calls attention to the rather hidden, cryptic nature of such word-groups, especially when they are not strongly contrasted in an idea, nor marked by frequently occurring reactions such as pronouns' (Whorf 1956:92). Examples include the English verbs that have prefixes in *un-*, or the nouns forming plurals in *-en*. Some of the best of Whorf's explications concern Hopi inceptional morphology, which differentiates four cryptotypes, each a class of verbs with a specific penumbra of meanings (1956:102–11). Although the Whorfian notion comes close to the notion of semplate, it is clearly a different notion—it is an implicit morphological category, with some semantic basis, and is opposed to a phenotype, an explicit morphological category. Semplates, by contrast, are not isolated by the formal behavior of their constituent lexical sets. Instead, they are characterized by a recurrent set of complex, interwoven semantic oppositions, indeed often an underlying geometrical model. We have little doubt that Whorf would have been interested in semplate patterns, and so also the German Neo-Humboldtians (Jost Trier, Leo Weisgerber, et al.), who were interested in the connections across semantic fields but had few worked-out examples (see Waterman 1957 for comparison between these traditions). But in none of these theorists do we find anything like a semplate clearly adumbrated.⁶

Another kind of potentially close concept is the notion of 'cultural model' developed in cognitive anthropology (Strauss & Quinn 1997), but emerging from the earlier psychological notions of 'schema' (Bartlett 1932) and 'mental model' (Mandler & Johnson 1977). Most of the work that goes under the rubric of cultural models is far removed from the notion of semplate—it is about the mental conception of a domain (germs, electricity, marriage, etc.) that can be inferred from interviews with informants, and it is not tied closely to linguistic structure or linguistic semantics (see e.g. Holland & Quinn 1987, D'Andrade & Strauss 1992, D'Andrade 1995, Quinn 2005).⁷ Sometimes, though, the evidence adduced for a cultural model is precisely of the kind we have dubbed a semplate. Bennardo (2002), for example, develops a notion of a radial template that structures Tongan language, cognition, and culture. His linguistic evidence starts

⁶ More recent invocations of 'world view' as encapsulated in the lexicon, for example, those by Hale (1986) or Everett (2005), also lack the highly structured, configurational character of semplates.

⁷ 'Schemas can include words but are hardly limited to these. They can include experience of all kinds—unlabeled as well as labeled, inarticulate as well as well-theorized, felt as well as cognized' (Quinn 2005: 38).

with a triadic opposition in directionals between ‘toward the center’, ‘away from the center’, and ‘away from the speech event participants’, and finds a related set of oppositions in deictics and pronouns. He then goes on to explore the cognitive reflexes of this radially, for example in map drawing, and the cultural reflexes in food exchanges. Here a semplate forms the core of a wider set of cognitive and cultural themes (or, if one prefers, the semplate is the reflection of those wider preoccupations). In short, though some ‘cultural models’ are associated with semplates, not all the things so dubbed have semplates at their heart, so we independently need the semplate notion.

We have ample evidence for the wider ramifications in cognition and culture of other semplates—for example, the Tzeltal tilted world semplate has clear cognitive correlates (Levinson 1996, 2003) and cultural reflexes (Brown & Levinson 1992, 1993). Similarly, the Jahai landscape semplate ramifies in Jahai culture and mythology. Part of the interest of the semplate idea is that these underlying templates often have deep cultural resonance. Nevertheless, the linguistic reflexes of templates seem to be quite bounded; that is, it would be easy to imagine extensions of the underlying templates to other lexical classes that do not in fact reflect them. Consider the Jahai subsistence semplate in §3: foraging involves carrying back the booty, but there are absolutely no signs of distinctions between carrying verbs that map onto the hierarchical structure in Figs. 8 and 9.

Semplates may seem to be closely related to metaphor. Currently, the dominant theories of metaphor are what Black (1962, 1979) called correspondence theories (in opposition to coercion and similarity theories); that is, a metaphor puts two domains into correspondence, allowing for point-for-point analogies across domains. The popular conceptual metaphor theory of cognitive linguistics (Lakoff & Johnson 1980) is a version of correspondence theory, in which, for example, the course of a human life is analogized to a journey, allowing talk of *cross-roads*, *blind alleys*, *uphill struggles*, and the like. Since semplates cut across lexical fields, the question naturally arises of whether semplates are just correspondence metaphors.

We have already noted a couple of cases where metaphor or analogy impinges on semplates (see e.g. the body or kinship analogy used in Jahai hydrology). But semplates are fundamentally not metaphorical. Consider, for example, the Tzeltal tilted world semplate: it is not a metaphor—the Tzeltal live in a world directly schematized in this way (though it should be added that the Tzeltal understand the tilted world template in an abstract way that applies equally to flat land anywhere). And the same holds for Jahai landscape. In short, semplates are not intrinsically metaphors because they schematize just one primary domain (although perhaps sometimes with secondary applications to another), rather than putting two domains into systematic correspondence. For the same reason, semplates cannot be reduced to analogy, understood as a structured mapping between two knowledge domains (Gentner 1983, Gentner & Jeziorski 1993): we are rather dealing with a single template, multiply expressed.

It must, however, be immediately conceded that metaphor may play a role in evolving, elaborating, or describing semplates. The Jahai landscape semplate described in §2.3 has two direct, plausibly metaphorical, layers, in terms of correspondences between the domain of the body and the domain of kinship. But the semplate is richer than the metaphorical expression—only the body metaphor partially captures the directionality of the axes, and although the body metaphor can be applied ‘fractally’ on all scales, the source domain allows no such reapplication of the terms at different scales. Other lexical layers of the semplate are not metaphorical. In short, the metaphor reflects only part of the semplate. In the case of the Yélí Dnye example in §2.2, it is plausible that the relation between the inclined ridge and waterborne models in the Yélí Dnye semplate

is indeed analogical or metaphorical (see Fig. 2), based on a force-dynamical analogy: in this case some of the same lexicon is carried across the two environmental domains (compatible with metaphor or metonymy), but some of it is not (arguing for the role of nonlinguistic analogy). The land-based model would be the likely source, since it appears to be richer, with more discriminations. But note that even if the metaphorical or analogical analysis is correct, there is still no doubt that the land-based system is not itself based on metaphor, and it already constitutes a template by itself, with distinct lexical layers mapped onto the same underlying template.

Lexically more overt templates may perhaps often have metaphorical origins. Take the Totonac body-part system described in §4: systems like this have sometimes been analyzed in metaphorical terms (Brugman 1983, Lakoff 1987:313). Levinson (1994) argues that the similar Tzeltal system cannot synchronically be understood in those terms, precisely because of its abstract, geometric character—in a similar way the Totonac template is more abstract, more geometrically articulated, than the metaphorical source domain (the human body). But regardless of that, what makes a semantic structure a template is not only its articulated, abstract, multirelational character, but also, above all, the instantiation of one semantic template in lexical set after lexical set.

Let us turn now to consider the place of templates in the traditional armamentarium of lexical semantics. The great bulk of insight into the semantic relations between words is based on dyadic relations between words, and especially insight into the sense relations of synonymy, antonymy, hyponymy (subordination), hyperonymy (superordination), and so forth (see Lyons 1977, Cruse 1986), which in turn can be seen to be partially built on the notion of entailment. In templates, the lexical mappings onto the underlying templates typically carry with them the corresponding sense relations between pairs of words. Thus Tzeltal *ajk'ol* 'uphill' contrasts with *alan* 'downhill' (see Fig. 1) in a way that makes them plausibly equipollent antonyms (Cruse 1977:209). But the inventory of sense relations offers no adequate characterization of the contrast 'uphill' and 'across' (*jech*)—these terms belong to different axes, and thus distinct oppositions (and actually 'across' is not an opposition at all). It is the template that hooks the two axes together in a specific geometric way (the axes are orthogonal, and the terms label quadrants centered on the axes), and the traditional sense relations cannot of course describe this (we would need a second-order relation between relations, not to mention geometry). So a first problem for the reductionist is that the configurational character of the underlying template cannot always be fully captured in dyadic sense relations. But in addition, the analogical relations between different lexical sets is a higher-order mapping of systems that cannot be reduced to dyadic relations between words.

Sense relations are arguably best captured through lexical decomposition of words into their semantic primes (cf. Wierzbicka 1996). Although such theories allow fine-grained contrasts and similarities of meaning to be represented, they also fail to deliver the configurational structures independent of specific lexical entries that are the hallmarks of templates. As Jackendoff (2002:343–45) notes, it is not clear how to capture taxonomic hierarchies or overall lexical structures in such a framework.

In addition to lexical sense relations, the traditional tools of lexical semantics include systematic organizing principles for lexical fields, of which taxonomies and meronymies (partonymies) are the most prominent in the literature. These are themselves built up by recursive application of specific sense relations (hyponymy and meronymy

respectively) together with additional constraints that give them their configurational character (e.g. unique beginners, unique superordinates). There are also less explored lexical configurations, such as proportionalities (Cruse 1986:118–35), for example, the triads in the English lexicon for humans, domesticates, and game animals, formed through a recurring pattern whereby the parameter adult-nonadult intersects with sex (*stallion : mare : foal; dog : bitch : puppy*). Quite high-level, abstract organizations shared across lexical fields have also been noted in, for example, space vs. possession vs. instantiation of properties (Gruber 1976, Jackendoff 2002:356–60). These overall configurational notions are the brethren of semplates, as are a number of other ideas that have come out of lexicography like frame semantics (Fillmore 1976; see also FrameNet⁸).

But even when a semplate makes use of an overall configuration that is already in the inventory of the tools of lexical semantics, it is not thus effectively reduced to the traditional notions. That is because it is definitional for a semplate that it is reflected across different lexical subfields and form classes. Take another look at the Jahai subsistence semplate—it has the formal properties of a taxonomy, but it is established by, and reflected in, descriptive nouns, classifiers, verbs of foraging, and verbs of eating. That is what makes the configuration remarkable, and important for understanding the structure of the Jahai lexicon (not to mention Jahai culture and everyday activity).

Let us, finally, attempt a definition. A semplate consists of an underlying abstract template that:

- (i) has articulated nodes, bearing specific but abstract relations to one another, for example, through edges (which are undirected) or arcs (which are directed),
- (ii) such that the nodes, edges, and arcs may be linguistically labeled or semantically incorporated into lexical items,
- (iii) and onto which at least two distinct lexical sets (layers) from different subdomains or form classes are mapped,
- (iv) with the sense relations between the lexical items in any one layer being inherited from the underlying template.

What is definitional of a semplate, then, is not only a complex configurational semantic template, but also its repeated instantiation by different lexical sets, drawn from different lexical subdomains or different form classes—it is a complex semantic network of relations that is cross-categorially coded in the lexicon.

We might also recommend the following terminology for the parts of a semplate, as illustrated in Figure 10.

- (i) SEMPLATE labels the whole configuration: the underlying semantic template and the different mappings of lexical sets onto the template; each lexical set can be called a LEXICAL LAYER.
- (ii) NODES are points in the semantic template, including endpoints of EDGES (and arcs; see (iii) below). So we can talk of, for example, two different lexical items from two different lexical sets mapped onto the same node or edge (see e.g. Fig. 1, where Tzeltal abstract nouns and field boundaries are mapped onto the corresponding positions in the template below them). Nodes and edges may be typically labeled by nouns, as in the Tzeltal terms for ‘upness’ and ‘uphill edge’, but also by verbs, as in the case of Jahai eating and foraging verbs.

⁸ <http://framenet.icsi.berkeley.edu/>

- (iii) ARCS typically but not always link nodes in the template. Note that arcs may be directly coded, for example, by verbs. Thus ‘ascend’ in the Tzeltal tilted world template is an arc, connecting the node ‘downhill’ with the node ‘uphill’. More often, perhaps, arcs will be only part of a verb’s meaning, as in the three corresponding verb sets in Yélfí Dnye (e.g. ‘go over’/‘carry X over’/‘cross over X’).
- (iv) Linguistic terms from across different lexical layers that label the same node, edge, or arc are connected by an *AXIS*. We might, slightly tongue in cheek, refer to such terms connected by the same axis as *SEMPLATONYMS*. (Thus, for example, the Yélfí Dnye verbs grouped vertically in Fig. 3 are *semplatonyms*: they incorporate in their semantics the same arc of the semplate, although they do not of course mean the same thing).

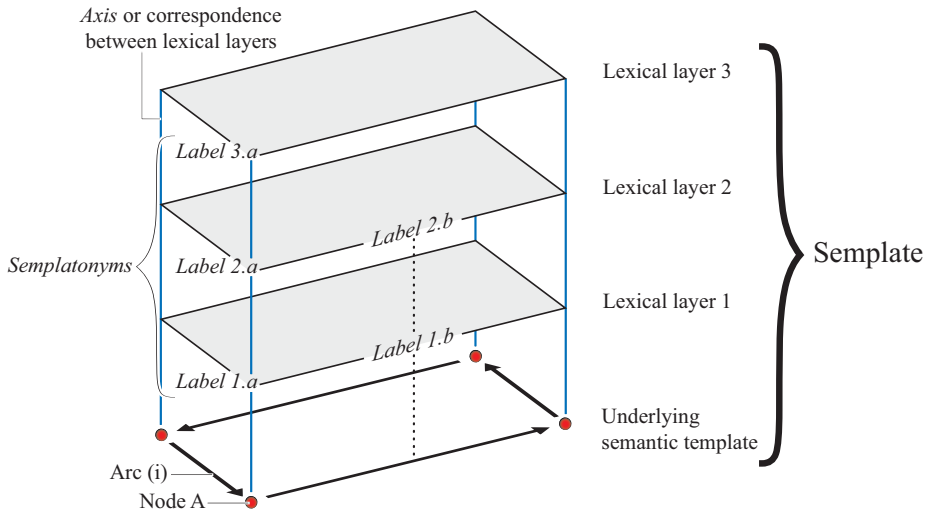


FIGURE 10. Recommended terminology for semplates and their components.

We may conclude that semplates are *sui generis*, in the sense that they cannot be reduced to existing notions in lexical (or other) semantics. This conclusion is perhaps not surprising: semplates are complex gestalt configurations with resonance and instantiation through a lexicon, while most of the effort in lexical semantics has been devoted to pair-wise relations between lexemes, or to single semantic subfields. It is this resonance in lexicon and culture that makes them especially interesting objects of inquiry to both linguists and anthropologists.⁹

6. CONCLUSIONS. We have found semplates in languages of quite unrelated stocks, in different continents and contrasting ecological settings. We suspect that the very lack of a name for the phenomenon has hidden the prevalence of semplates in language description—something noticeable without a term in our scientific metalanguage often

⁹ A referee raises the question of lexicon participating in more than one semplate. So far, we have not found any examples of this, although such a phenomenon seems perfectly possible. In the two languages in which we have identified more than one semplate (Yélfí Dnye and Jahai), the semplates in question structure different domains (landscape vs. object position and landscape vs. subsistence, respectively) so it is perhaps not surprising that lexicon is not shared between them. Answers will have to await the collection of further examples.

goes unreported. Nevertheless, it may not be a coincidence that the semplates we have found all come from languages spoken in small, traditional societies without elaborate divisions of labor, in domains that are central to their way of life. It could be that it is only in such small-scale societies that one can find the close match in individual lexicons upon which semplates depend. Consider again the Kuninjku example from the introduction (§1) of this short report, with special verbs of motion for the male and female members of a specific wallaby species, presupposing the shared discriminations in both the verbal and the nominal lexicon. This kind of expertise is presumptively shared knowledge in societies with a low division of labor. It is in the same kind of society, of course, that the structuralist anthropologist has a field day, finding homologies between, for example, cosmological ideas, house design, myth, and ritual (see Lévi-Strauss 1963). It could perhaps be that the kind of information compression found in semplates has a similar source. There may, however, be more mundane explanations, for example in derivational relations between the different lexical sets mapped onto a single semantic template that are now lost through phonological change or made obscure by the tendency in 'small languages' to tolerate higher levels of irregularity and suppletion (see e.g. Kusters 2003). Against this, however, is some evidence that semplates can outlive their original lexicalization, and have their nodes filled or refilled by loans borrowed from contact languages (Burenhult 2008b, 2009).¹⁰ A widespread cognitive mechanism that might underlie semplates is priming, the process whereby implicit memory invokes larger representations: it has, for example, been shown that quite abstract structures like spatial frames of reference can be primed (Watson et al. 2006). But regardless of the origins of semplates, we believe they are an overlooked kind of lexical configuration that has considerable theoretical interest.

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¹⁰ Semplates therefore may be quite significant in processes of language contact, historical semantic change, and language shift.

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Language and Cognition Group
 Max Planck Institute for Psycholinguistics
 P.O. Box 310
 NL-6500 AH Nijmegen, The Netherlands
 [Stephen.Levinson@mpi.nl]
 [Niclas.Burenhult@mpi.nl]

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